

P/N: 71201-0101

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Disclaimer

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General description	
<p>The FLIR AX8 camera/sensor provides an affordable and accurate temperature measurement solution for anyone who needs to solve problems that need built in "smartness" such as analysis, alarm functionality, and autonomous communication using standard protocols. The FLIR AX8 also has all the necessary features and functions to build distributed single- or multi-camera solutions utilizing standard Ethernet hardware and software protocols.</p>	
<p>The FLIR AX8 also has built-in support to connect to industrial control equipment such as PLCs, and allows the sharing of analysis and alarm results and simple control using the Ethernet/IP and Modbus TCP field bus protocols.</p>	
<p>Key features:</p> <ul style="list-style-type: none"> • Support for the EthernetIP field bus protocol (analyze, alarm, and simple camera control). • Support for the Modbus TCP field bus protocol (analyze, alarm, and simple camera control). • Built-in analysis functionality. • Alarm functionality, as a function of analysis and more. • Built-in web server for control and set up. • MJPEG, MPEG-4, or H.264 image streaming. • PoE (Power over Ethernet). • General-purpose output. • 100 Mbps Ethernet (100 m cable). • On alarm: file sending (FTP) or e-mail (SMTP) of analysis results or images. 	
<p>Typical applications:</p> <ul style="list-style-type: none"> • Electrical and mechanical condition-monitoring applications where temperature or temperature trends can be an indication of a potential risk of failure. • Simple process control applications. 	
Imaging and optical data	
IR resolution	80 × 60 pixels
Thermal sensitivity/NETD	< 0.10°C @ +30°C (+86°F) / 100 mK
Field of view (FOV)	48° × 37°
Depth of field	0.1 m (0.33 ft.), infinity
Focal length	1.54 mm (0.061 in.)



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Imaging and optical data	
Spatial resolution (IFOV)	11.1 mrad
F-number	1.1
Image frequency	9 Hz
Focus	Fixed

Detector data	
Detector type	Focal plane array (FPA), uncooled microbolometer
Spectral range	7.5–13 μm
Detector pitch	17 μm
Detector time constant	Typical 12 ms

Visual camera	
Built-in digital camera	640 × 480
Digital camera, FOV	Adapts to the IR lens
Sensitivity	Minimum 10 lux without illuminator

Measurement	
Object temperature range	–10 to +150°C (14 to +302°F)
Accuracy	$\pm 2^\circ\text{C}$ ($\pm 3.6^\circ\text{F}$) or $\pm 2\%$ of reading (+10 to +100°C @ +10 to +35°C ambient)

Measurement analysis	
Spotmeter	6
Area	6 boxes with max./min./average
Automatic hot/cold detection	Max./min. temperature value and position shown within box
Measurement presets	Yes
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on input of optics/window transmission and temperature
Measurement corrections	Global object parameters

Alarm	
Alarm functions	Automatic alarms on any selected measurement function. A maximum of 5 alarms can be set.
Alarm output	Digital out, store image, file sending (FTP), email (SMTP), notification

Set-up	
Color palettes	Color palettes (BW, BW inv, Iron, Rain)
Set-up commands	Date/time, Temperature (°C/°F)
Web interface	Yes

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Storage of images	
Storage media	Built-in memory for image storage
Image storage mode	IR, visual, MSX
File formats	JPEG + FFF
Image streaming	
Image streaming formats	<ul style="list-style-type: none"> • Motion JPEG stream MJPEG Baseline Process Encoder Baseline ISO/IEC 10918-1 JPEG compliance • MPEG stream Stream format MPEG-4 ISO/IEC 14496-2 Simple Profile level 2 • H.264 stream Stream format H.264 Baseline Profile level 2.0
Image streaming resolution	640 × 480
Image modes	<ul style="list-style-type: none"> • Thermal • Visual • MSX
Automatic image adjustment	Continuous
Multi Spectral Dynamic Imaging (MSX)	IR image with enhanced detail presentation
Ethernet	
Ethernet	Control, result and image
Ethernet, type	100 Mbps
Ethernet, standard	IEEE 802.3
Ethernet, connector type	M12 8-pin X-coded
Ethernet, communication	TCP/IP socket-based FLIR proprietary
Ethernet, video streaming	Yes
Ethernet, power	Power over Ethernet, PoE IEEE 802.3af class 2.
Ethernet, protocols	Ethernet/IP, Modbus TCP, TCP, UDP, SNMP, RTSP, RTP, HTTP, ICMP, IGMP, sftp, SMTP, DHCP, MDNS (Bonjour)
Power system	
External power operation	12/24 VDC, 2 W continuously/ 4.7 W absolute max
External power, connector type	M12 8-pin A-coded (Shared with digital I/O)
Voltage	Allowed range 10.8–30 VDC
Environmental data	
Operating temperature range	–0°C to +50°C (+32°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F) according to IEC 68-2-1 and IEC 68-2-2
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25° C to +40°C (+77°F to +104°F)/ 2 cycles
EMC	<ul style="list-style-type: none"> • EN 61000-6-2:2001 (Immunity) • EN 61000-6-3:2001 (Emission) • FCC 47 CFR Part 15 Class B (Emission)
Encapsulation	IP 67 (IEC 60529)
Bump	25 g (IEC 60068-2-29)
Vibration	2 g (IEC 60068-2-6)



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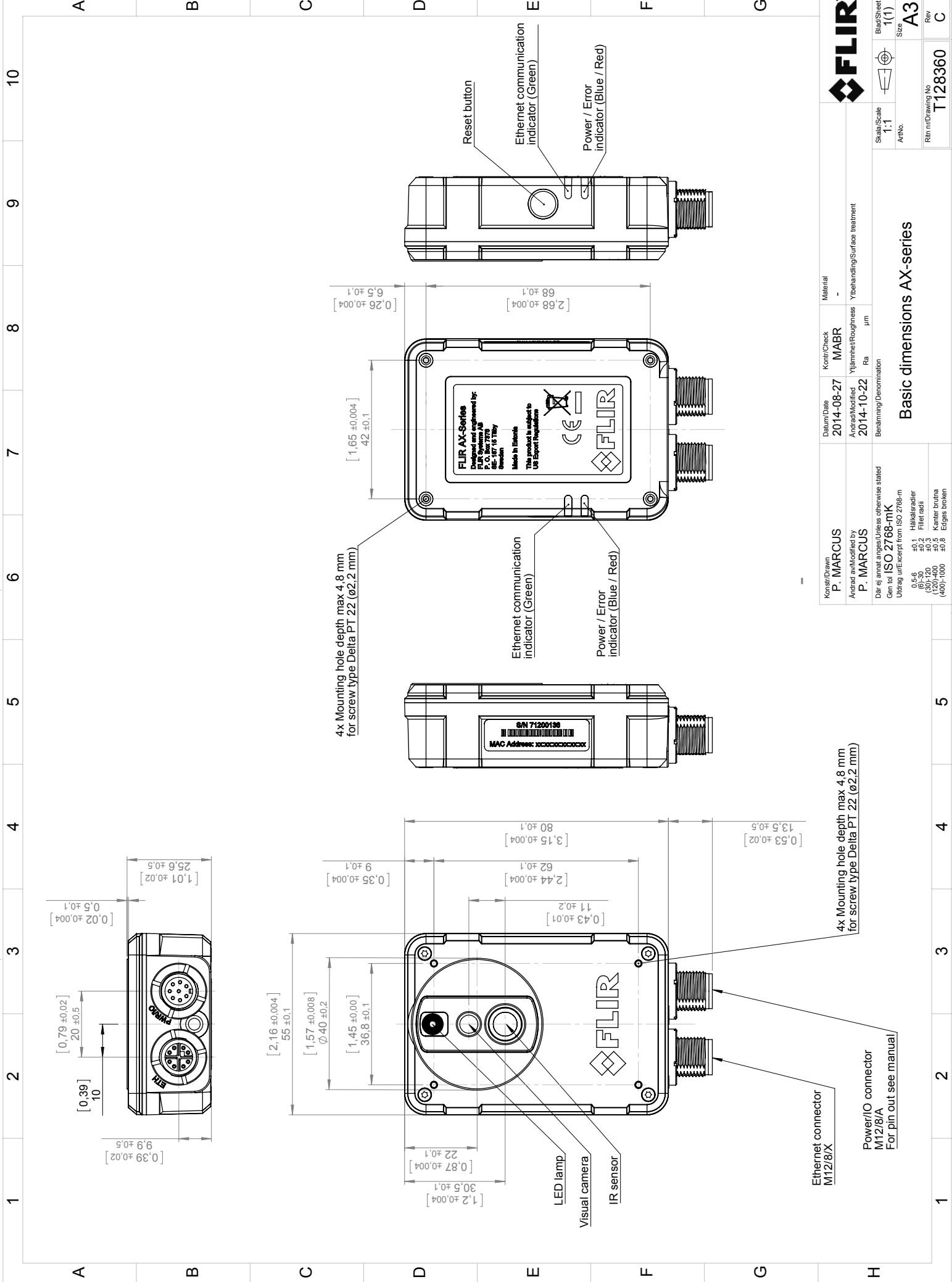
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Physical data	
Weight	0.125 kg (0.28 lb.)
Camera size (L x W x H)	<ul style="list-style-type: none">• 54 x 25 x 79 mm (2.1 x 1 x 3.1 in.) without connectors• 54 x 25 x 95 mm (2.1 x 1 x 3.7 in.) with connectors
Base mounting	4x mounting hole depth max 4.8 mm for screw type Delta PT 22 (ø2.2 mm)
Housing material	PA6 with 30% GF (glass fiber reinforced)
Shipping information	
Packaging, type	Cardboard box
List of contents	<ul style="list-style-type: none">• Infrared camera with lens• Cardboard box• Printed documentation• User documentation CD-ROM
EAN-13	4743254001725
UPC-12	845188009373
Country of origin	Estonia

Supplies & accessories:

- T128391ACC; Cable, M12 to pigtail (FLIR AX series)
- T128390ACC; Ethernet cable, M12 to RJ45
- T199019; PoE injector, incl. cables

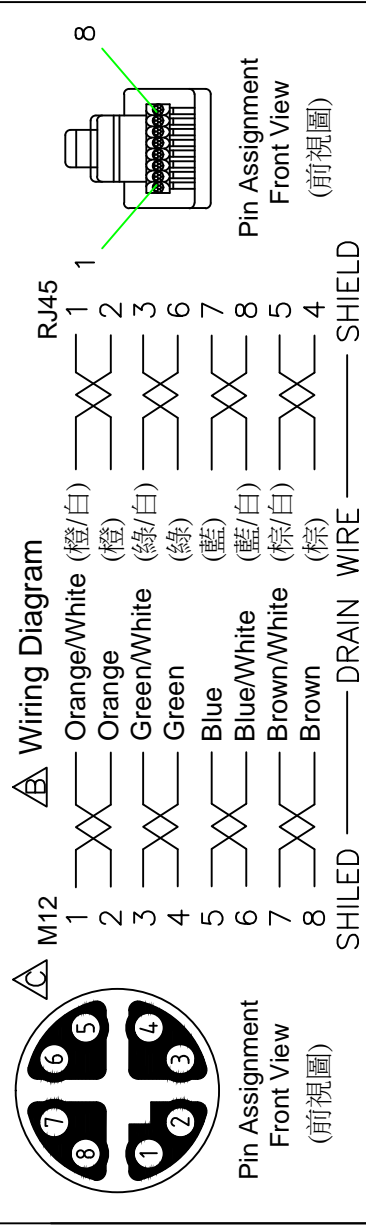
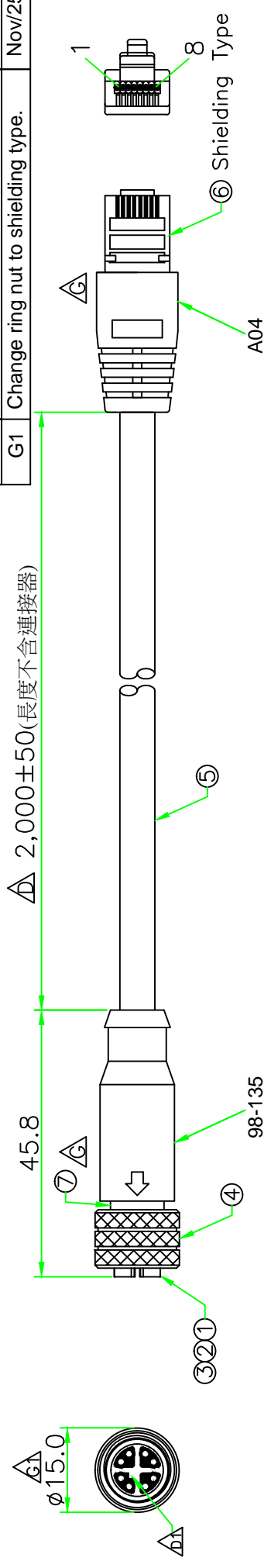


FLIR		Material	
Konstr/Drawn P. MARCUS		Kontr/Check MABR	
Datum/Date 2014-08-27		Material -	
Ändrad/Modified P. MARCUS		Ytämnhet/Roughness Ra μm	
Datum/Date 2014-10-22		Ytämnhet/Roughness Ra μm	
Benämning/Denomination Basic dimensions AX-series		Benämning/Denomination	
Dir ej ansvar ägs/Unless otherwise stated Gen tol ISO 2768-mK		Dir ej ansvar ägs/Unless otherwise stated Gen tol ISO 2768-m	
Utdrag ur/Excerpt from ISO 2768-m		Utdrag ur/Excerpt from ISO 2768-m	
0,5-6 ±0,1 Hållisradier		0,5-6 ±0,1 Hållisradier	
(6)-30 ±0,2 Fillet radii		(6)-30 ±0,2 Fillet radii	
(120)-400 ±0,5 Kanter brutna		(120)-400 ±0,5 Kanter brutna	
(400)-1000 ±0,8 Edges broken		(400)-1000 ±0,8 Edges broken	
Sheet Scale 1:1	Sheet Size A3	Rev C	Part no/Part no T128360

RoHS

IP67

REV.	DESCRIPTION	DATE
A	ISSUE	Dec/23/2013
B	Modify the wire diagram.	Dec/25/2013
C	Modify M12 Pin Assignment.	Dec/25/2013
D	Modify cable length.	Dec/25/2013
D1	Correct key direction.	Jan/22/2014
E	Add note.	Mar/30/2014
F	Modify P/N.	Sep/25/2014
G	Modify connector to shielding type.	Nov/12/2014
G1	Change ring nut to shielding type.	Nov/25/2014



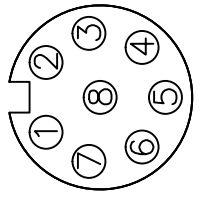
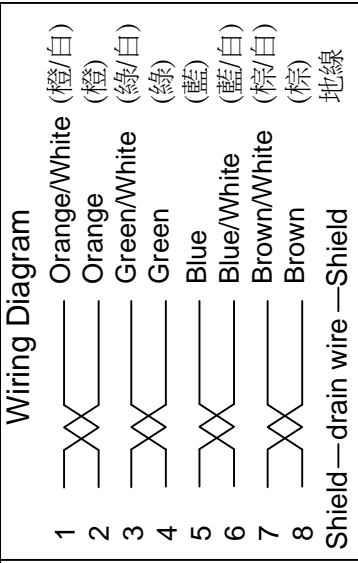
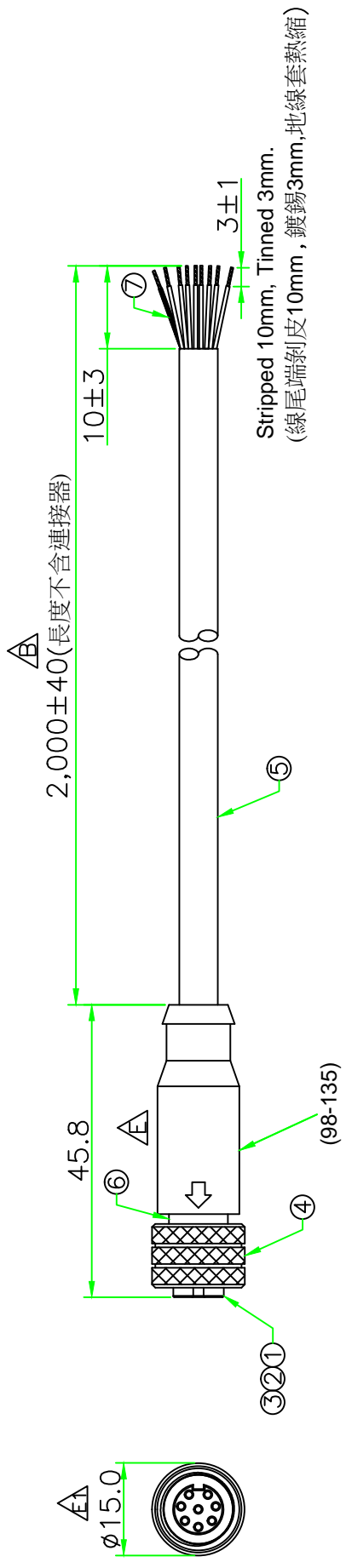
7	SHIELD	Brass, Nickel Plated.	1				
6	RJ45 PLUG	RJ45 8P8C PLUG (shielding type).	1				
5	CABLE	CAT5E FTP 24AWG x 4 PAIR + AL/MY + Drain wire.	1	WAC2B0026			
4	RING NUT	Brass, Nickel Plated.	1	M12S-RN-D985			
3	O-RING	Viton.	1	M12-O-VK			
2	CONTACT	Brass, Female pin, .6 u" Gold plated.	8	AASPF-1008-0.8			
1	CONNECTOR	M12 X-coding Female connector insert. Nylon+GF.	1	M12X-08F			
No.	PART NAME	DESCRIPTION	Q'TY	REMARKS	COLOR		

Customer: FLIR	
TITLE	M12 X-Coding Female Molded Cable Assy
UNIT: mm	1:1
SCALE	1:1
UNLESS OTHERWISE SPECIFIED TOLERANCES:	
X ± 0.25	XX ± 0.1
XXX ± 0.05	ANGLE ± 1°
REV.	G1
SHEET	1/1
DWG.NO:	T128390
P/N:	K129351004
DR.	Stanley
CH.	ERIC
AP.	



IP67

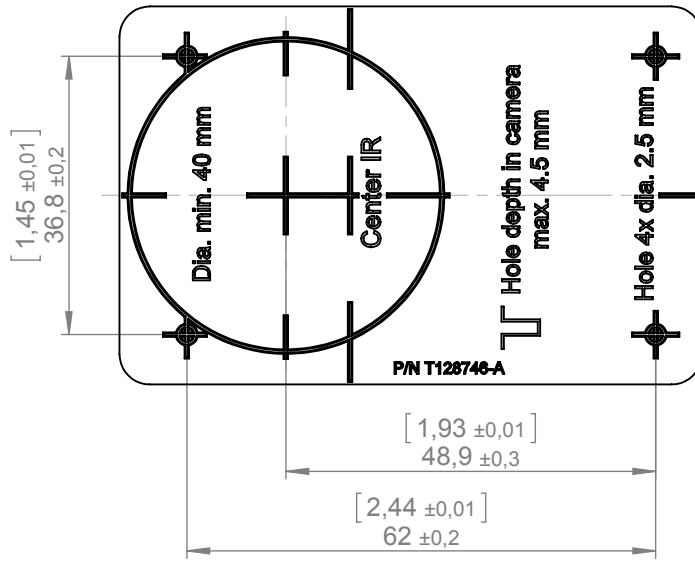
REV.	DESCRIPTION	DATE
A	ISSUE	Dec/23/2013
B	Modify cable length.	Dec/25/2013
C	Add note.	Mar/20/2014
D	Modify P/N.	Sep/25/2014
E	Modify connector to shielding type.	Nov/12/2014
E1	Change ring nut to shielding type.	Nov/25/2014



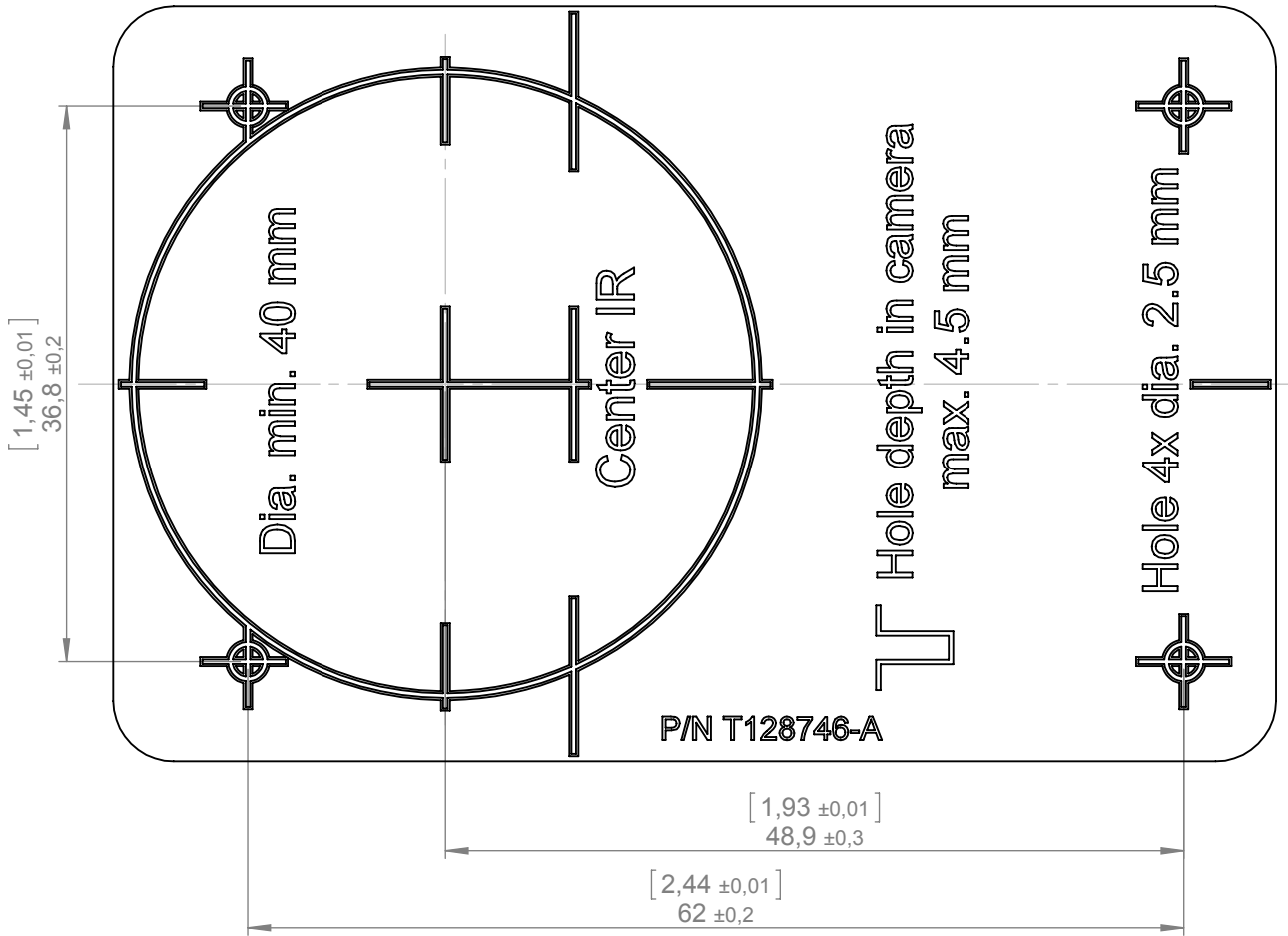
7	TUBE	Heat shrink tube.	BLACK	1		
6	SHIELD	Brass, Nickel Plated. Δ		1		
5	CABLE	CAT5E FTP 24AWG x 4 PAIR + AL/MY + Drain wire.	BLACK	1	WAC2B0026	
4	RING NUT	Brass, Nickel Plated.		1	M12S-RN-D985	
3	O-RING	Viton.	BLACK	1	M12-O-VK	
2	CONTACT	Brass, Female pin, 6 u" Gold plated.		8	AASPF-1008-0.8	
1	CONNECTOR	M12 A-coding Female connector insert. Nylon+GF.	BLACK	1	M12A-08F	
No.	PART NAME	DESCRIPTION	COLOR	Q'TY	REMARKS	

Customer: FLIR

UNIT: mm	SCALE	TITLE
1:1	1:1	M12 A-Coding 8P Female Molded Cable Assy
UNLESS OTHERWISE SPECIFIED TOLERANCES:		P/N: K129351003
X ± 0.25	XX ± 0.1	DR. <i>Stanley</i>
XXX ± 0.05	ANGLE ± 1°X	CH. <i>ERJC</i>
REV.	SHEET	DWG. NO: T128391 Δ
E1	1/1	AP.

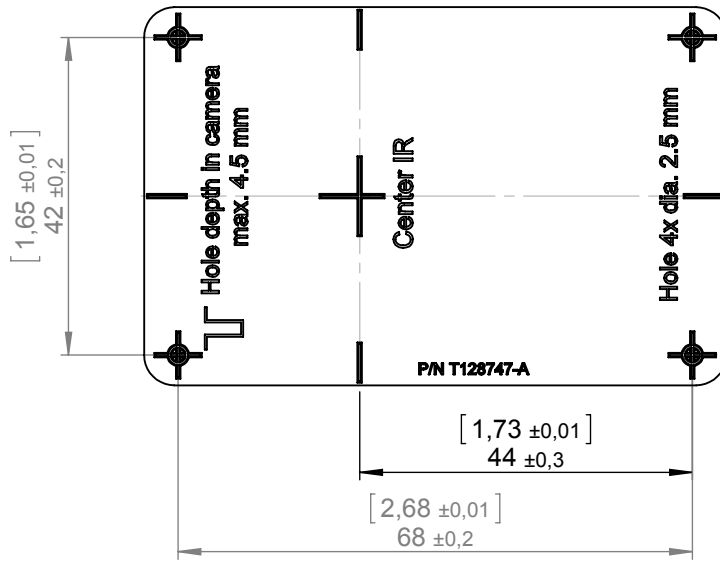


Scale 1:1

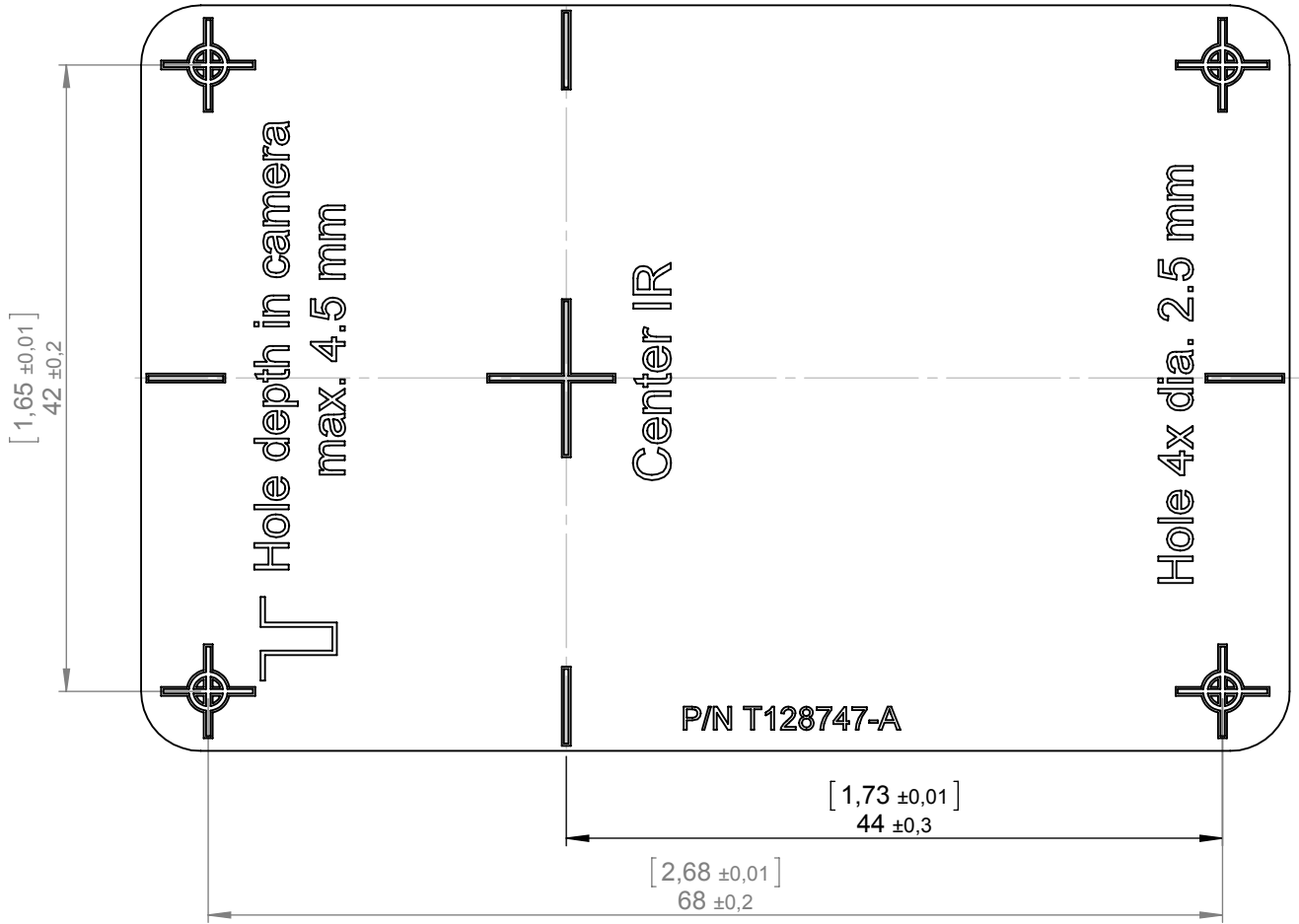


Scale 2:1

Konstr/Drawn P. MARCUS	Datum/Date 2014-10-06	Kontr/Check JAMA	Material Note 1		
Ändrad av/Modified by P. MARCUS	Ändrad/Modified 2015-03-04	Ytjämnhet/Roughness Ra μm	Ytbehandling/Surface treatment		
Där ej annat anges/Unless otherwise stated Gen tol ISO 2768-mK Utdrag ur/Excerpt from ISO 2768-m	Benämning/Denomination Drilling template front			Skala/Scale 2:1	Blad/Sheet 2(2)
0,5-6 ±0,1 Hålkälsradier (6)-30 ±0,2 Fillet radii (30)-120 ±0,3 (120)-400 ±0,5 Kanter brutna (400)-1000 ±0,8 Edges broken				Art.No.	Size A4
				Ritn nr/Drawing No T128746	Rev A



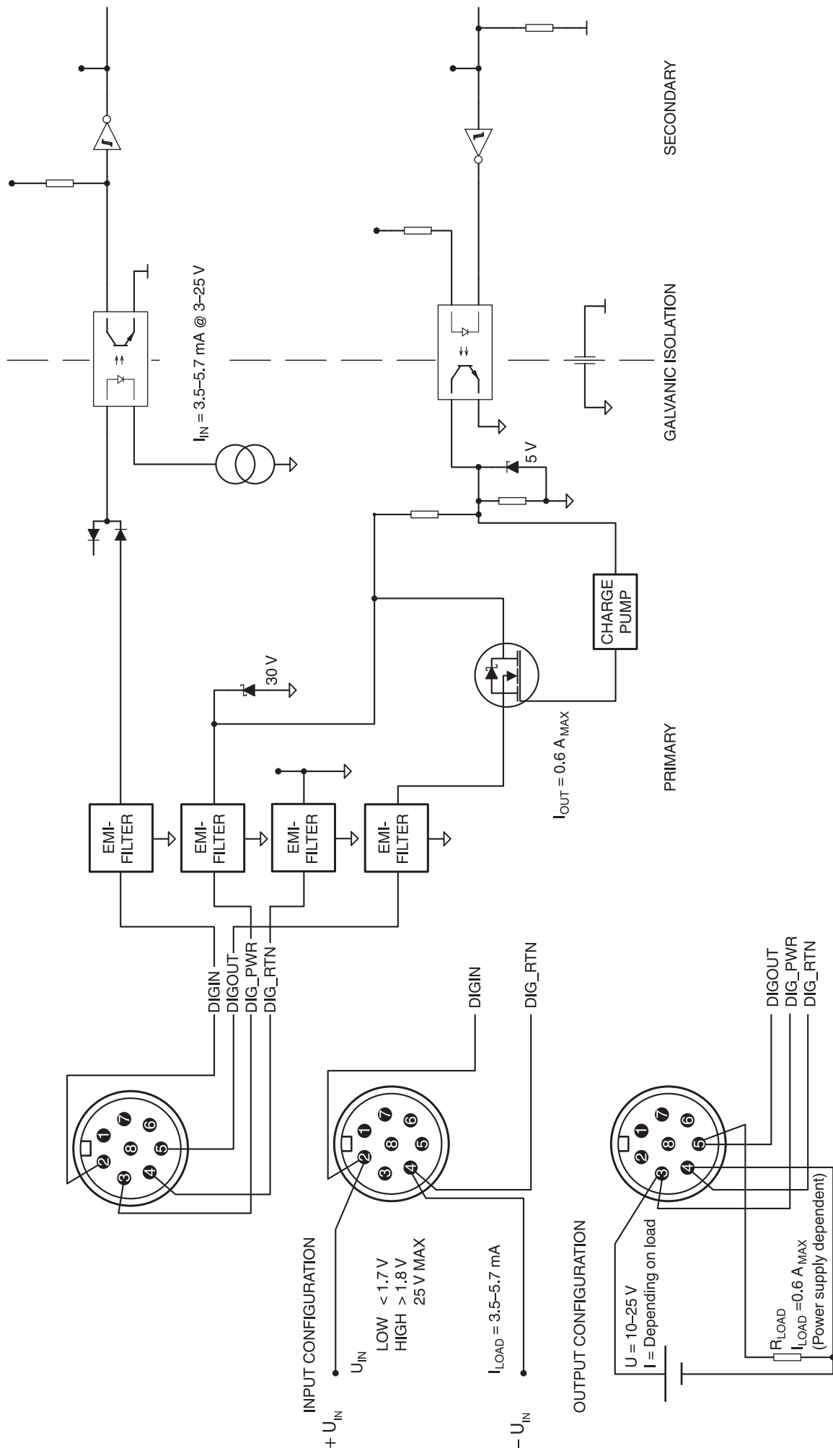
Scale 1:1



Scale 2:1

Konstr/Drawn P. MARCUS	Datum/Date 2014-10-06	Kontr/Check JAMA	Material Note 1		
Ändrad av/Modified by P. MARCUS	Ändrad/Modified 2015-03-04	Ytjämnhet/Roughness Ra μm	Ytbehandling/Surface treatment		
Där ej annat anges/Unless otherwise stated Gen tol ISO 2768-mK Utdrag ur/Excerpt from ISO 2768-m	Benämning/Denomination Drilling template rear			Skala/Scale 2:1	Blad/Sheet 2(2)
0,5-6 ±0,1 Hålkälsradier (6)-30 ±0,2 Fillet radii (30)-120 ±0,3 (120)-400 ±0,5 Kanter brutna (400)-1000 ±0,8 Edges broken				Art.No.	Size A4
				Ritn nr/Drawing No T128747	Rev A

Digital I/O connection diagrams FLIR AX8



CE Declaration of Conformity

This is to certify that the System listed below have been designed and manufactured to meet the requirements, as applicable, of the following EU-Directives and corresponding harmonising standards. The systems consequently meet the requirements for the CE-mark.

Directives:

Directive 2004/108/EC; Electromagnetic Compatibility

Standards:

**Information technology: EN 55022 Radio disturbance characteristics-
(AC:2011)**

**Information technology: EN 55024 Immunity characteristics-
(CISPR 24:2010)**


Additional standards:

**Emission: EN 61000-6-3; Electro magnetic Compatibility
Generic standards - Emission**

**Immunity: EN 61000-6-2; Electro magnetic Compatibility;
Generic standards - Immunity**

System: **FLIR Ax8-series**

FLIR Systems AB
Quality Assurance


Björn Svensson
Director